REMARKS

I. Introduction

Applicants would like to thank the Examiner for considering the Information Disclosure Statement (IDS) filed on May 20, 2004. In response to the Examiner's request for a translation of the IDS item JP 2001-345478, Applicants are in the process of obtaining the requested translation and will provide this translation to the Examiner once available.

In response to the Office Action dated October 3, 2005, Applicants have amended claims 1 and 2 to more particularly point out and distinctly claim the subject matter of the invention. Support for this amendment can be found, for example, in the specification on page 9, lines 8-19. No new matter has been added.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited references.

II. The Rejection of Claims 1 and 2 Under 35 U.S.C. § 102

Claims 1 and 2 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by USP No. 6,681,270 to Sakai. Applicants traverse this rejection for at least the following reasons.

Claim 1, as amended, recites an active layer that exhibits a fluctuation in the bandgap based on a variation in the distribution of aluminum content of the order of nanometers containing an excessive amount of Al in the active layer. Claim 2 includes a similar recitation. At least this feature is not disclosed by Sakai.

According to an exemplary embodiment of the present invention, a fluctuation on the order of nanometers occurs in the bandgap. Since electrons or holes are present in portions of the fluctuation of the bandgap, the electrons or holes are less likely to be captured in a non-radiative recombination center. Accordingly, the light emission efficiency improves about 10

times as great as in a case where no Al excess is formed (see Specification at page 10, line 21 to page 11, line 7).

Sakai, by contrast, merely discloses that droplets of Ga having a diameter of 10 to 500 nm are spaced at a distance of 1μm or less at most and the crystal growth is performed by MOCVD to form the AlGaN layer having a large Ga content (see, column 2, lines 5-11; column 3, lines 34-61; Figure 1B). Since the droplets of Ga have a diameter of 10 to 500 nm, the AlGaN layer has a diameter of several dozen to several hundred nm. Additionally, as depicted in Figure 1B, the adjacent AlGaN layers are spaced at a distance of 1μm or less, which would yield a diameter of several hundred nm. The AlGaN layer having such a large diameter causes a large fluctuation in the bandgap, thereby decreasing the likelihood of electrons or holes being present in a region having a small bandgap. Accordingly, the light emission efficiency is not improved as compared with the case with little or no fluctuation in the bandgap.

Accordingly, Sakai does not disclose a distribution of aluminum content on the order of nanometers containing an excessive amount of Al in the active layer, as recited in claims 1 and 2. As such, claims 1 and 2 are not anticipated by Sakai.

III. Conclusion

Accordingly, it is urged that the application is in condition for allowance, an indication of which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper,

including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP

Michael E. Fogarty
Registration No. 36,139

Please recognize our Customer No. 20277 as our correspondence address.

600 13th Street, N.W.

Washington, DC 20005-3096
Phone: 202.756.8000 MEF:dab
Facsimile: 202.756.8087
Date: January 3, 2006